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Clinicopathological Correlation of Leiomyoma in a Tertiary Care Centre: A Retrospective Study

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Abstract
Leiomyoma is the most common type of benign tumor of uterus and carry 70-80% of cumulative incidence in reproductive age group. Our study was conducted to analyse the clinicopathological correlation, spectrum of variants and secondary changes of leiomyoma of uterus. The clinical presentation, histological pattern and combination with other reproductive tract lesions were also studied. The time period was two years from September 2016 to August 2018. A total of 100 hysterectomy and myomectomy specimens received in pathology department of T.S. Misra Medical College, were included in the study. Most of the patients of leiomyoma were present in their reproductive age. Hyaline change and calcification are commonly seen in longstanding leiomyomas and are clinically asymptomatic. In our study the incidence remains highest in the child bearing age group. Intramural leiomyoma was present in highest number. The presence of proliferative phase of endomentrium, endometrial hyperplasia, adenomyosis and cystic ovaries indicated association of leiomyoma with high estrogen levels in the blood.

Introduction

Leiomyoma is the most common type of benign tumor of uterus and carry 70-80% of cumulative incidence in reproductive age group. These tumors are rarely seen before puberty and regresses after menopause indicating definite correlation with estrogen level. It is also called fibroid due to abundance of fibrotic tissue.[(1,2)]

Most cases of leiomyoma are asymptomatic and need no treatment. Among symptomatic cases, menstrual disturbances are the most common symptom and leads to anaemia in majority of patients. Other common symptoms are abdomino-pelvic pain and pressure symptoms. Pressure symptoms are urinary frequency and urgency which may develop due to large size fibroid or

sudden increase in size of the fibroid. Heavy menstrual bleeding is the most common clinical symptom seen in intramural leiomyoma since it interferes with myometrial contraction. Intermittent bleeding is frequently associated with submucosal leiomyoma because of endometrial ulceration. The asymptomatic fibroids are seen more commonly in multiparous women belonging to perimenopausal age.[3] Infertility and repeated miscarriages are also very distressful symptoms of leiomyoma.

Our study was conducted to analyse the clinicopathological correlation, spectrum of variants and secondary changes of leiomyoma of uterus. The clinical presentation, histological pattern and combination with other reproductive tract lesions were also studied.

Material and Method

After getting ethical clearance from the ethical committee, a retrospective study was conducted in the department of Pathology of T.S. Misra Medical College, Lucknow. The time period was two years from September 2016 to August 2018. A total of 100 hysterectomy and myomectomy specimens were included in the study. Autolysed specimens were excluded from the study.

A detailed history, clinical examination and investigations were obtained. All hysterectomy & myomectomy specimens with preoperative clinical diagnosis of fibroid were included in the study along with the hysterectomy samples in which fibroid was an incidental finding. A detailed gross examination was done and noted for fibroid location, number, size and secondary changes. The specimens were allowed to fix in 10% formalin for 24-48hrs. Sections were taken from the representative areas and paraffin blocks were prepared. Five micron thick sections were prepared and hematoxylin and eosin staining was done. A detailed microscopic examination was done to confirm the leiomyoma; its degenerative changes and other co-existing pathological lesion of uterus and adnexa.

Result

Table 1: Age groups of patients underwent hysterectomy

S.N	Age groups	No.of cases	Percentage
1.	16-25	12	12%
2.	26-35	36	36%
3.	36-45	28	28%
4.	46-55	11	11%
5.	56-65	10	10%
6.	66-75	03	3.0%
	Total	100	100%

Table 2: Chief clinical complaint

s. no.	Chief complaint	No. of cases	Percentage
1.	Heavy menstrual bleeding	42	42%
2.	Pain in abdomen	19	19%
3.	Infertility	15	15%
4.	Painful menstruation	09	9%
5.	White vaginal discharge	03	3%
6.	Asymptomatic (Incidental)	12	12%
	Total	100	100%

Table 3: Parity of the patients

Parity Of Patients		No.of cases	Percentage
Nulliparous		18	18%
Primipara		18	18%
Multipara	2	38	38%
	>2	26	26%

Table 4: Incidence of various surgeries performed

S. no.	Type of surgery	Number of cases	Percentage
1.	Total abdominal hysterectomy	32	32%
2.	Total abdominal hysterectomy with bilateral salpingo-oophorectomy	16	16%
3.	Total abdominal hysterectomy with unilateral salpingho-oophorectomy	10	10%
4.	Myomectomy	42	42%

Table 5: Gross dimensions of uterus(in cms)

Dimensions	Maximum	Minimum	Average
Length	20	8	14
Breadth	18	6	12
Width	11	5	8

Table 6: dimensions of leiomyoma (in cms)

Dimensions	Maximum	Minimum	Average
Length	10	0.5	5.25
Breadth	8	0.5	4.25
Width	8	0.4	4.20

Table7: Number of leiomyoma

No. of lesions	No.of cases	Percentage
One	45	45%
>1	55	55%

Table 8: Location of leiomyoma in uterus

S.no.	Location. of lesions	No.of cases	Percentage
1	Submucosal	17	17%
2	Intramural	40	40%
3	Subserosal	10	10%
4	Submucosal+Intramural	11	11%
5	Submucosal+Subserosal	6	6%
6	Intramural+Subserosal	6	6%
7	All three	3	3%
8	Cervical	4	4%
9	Broad Ligament	3	3%
	Total	100	100%

Table 9: Degenerative changes in leiomyoma

S.no.	Degeneration	Cases	Percentage
1.	Hyaline	8	8%
2.	Myxoid	4	4%
3.	Cystic	3	3%
4.	Calcareous	2	2%
5.	Red degeneration	2	2%
6.	Sarcomatous	1	1%
	Total	20	20%

Table 10: Incidence of coexisting lesions in uterus and adnexa

S.no.	Type of lesions	No.of cases	Percentage
1	Cervicitis	36	36%
2	Adenomyosis	15	15%
3	Ovarian Cysts	05	5%
4	Metaplastic Changes	04	4%
5	Endometrial Hyperplasia	04	4%
6	Endometritis	01	1%
7	Unassociated	35	35%

Of the 100 hysterectomy & myomectomy specimens received, patient's age ranged from 16 to 75 years. Most of the patients of leiomyoma were present in their reproductive age . Maximum number of cases were present in 26-35 year age group with 36%cases followed by 28% cases in 36-45 years age group. Thus, majority of patients were present in child-bearing ages. Number of cases gradually decreased upto post-menopausal age. (Table 1)

The patient most commonly presented with heavy menstrual bleeding in 42% cases followed by abdominal pain in 19% cases, infertility in 15%cases, painful menstruation in 9% cases and 3% cases of vaginal discharge. 12 cases were operated for another symptomatic uterine lesions & leiomyoma was found on histopathologically as an incidental finding. (Table 2)

Parity wise our study showed the maximum cases of leiomyoma in multiparous women with 38% cases of parity 2 and 26% cases of parity more than 2. This was followed by 18%cases of single parity and 18% casesin nulliparous women. (Table 3)

Considering the type of hysterectomy done on the patients, the majority of patients underwent total abdominal hysterectomy without adnexa in32%cases followed by total abdominal hysterectomy with bilateral salpingo-oophorectomy in16% cases and total abdominal hysterectomy with unilateral salpingo-ophorectomy in 10% cases, whereas only myomectomy is done in 42% cases .(Table 4)

Regarding uterine dimensions, largest uterus was of 20cmx18cmx11cm and smallest size uterus observed was of 8x6x5cm.(Table 5).The largest fibroid was of 10cmx8cmx8cm and smallest was of 0.5cmx0.5cmx0.4cm. (Table 6). Tiny cystic spaces and calcified areas were seen in the comparatively larger fibroids. There were more than one leiomyoma in 55% cases and solitary leiomyoma in 45% cases. (Table 7)

Regarding location of leiomyoma, most common location was intramural in 60% cases followed by 37% cases of submucosal and 25% cases of subserosal location. 26% cases had leiomyoma at more than one sites in the uterine wall and leiomyoma present both submucosally and intramurally was commonest in 11% cases and only 3% cases with leiomyoma in all the three layers of the uterus. 4% cases of cervical

leiomyomas and 3% leiomyoma in broad ligament were also present. (Table 8)

Degenerative changes were observed in 20% cases. Among these, 8% leiomyomas show predominantly hyaline changes (fig. 1). Second degenerative change was myxoid which was noticed in 4% leiomyomas. This was followed by cystic change in 3% cases (fig. 2), calcareous in 2% cases, red degeneration in 2% cases and sarcomatoid in 1% case. There was no case of fatty changes in leiomyoma in our study. (Table 9)

Different co-existing uterine and adnexal lesions were also recorded and tabulated. Among these maximum number of leiomyomas had coexisting cervicitis in 36% cases. This was followed by coexisting adenomyosis in 15% cases and ovarian cyst in 5% cases. Co-existence of metaplastic changes and endometrial hyperplasia was observed in 4% cases each. Only one case was with coexisting endometritis which was granulomatous in origin. Rest 35 of leiomyoma cases were unassociated with any co-existing genital tract pathology. (Table 10)

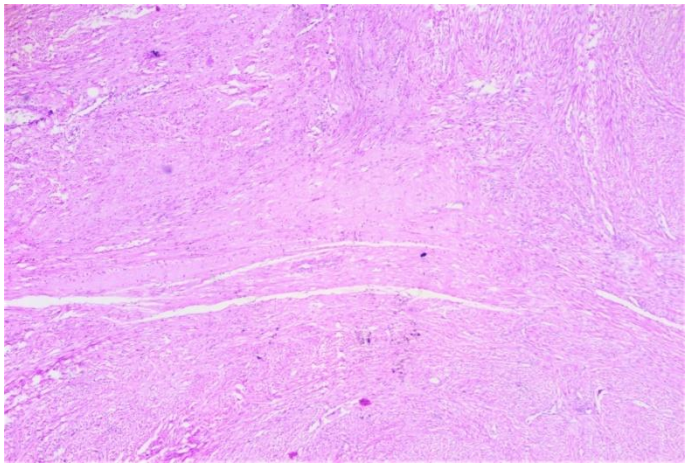

Fig 1: Leiomyoma with hyaline degeneration. (40x)

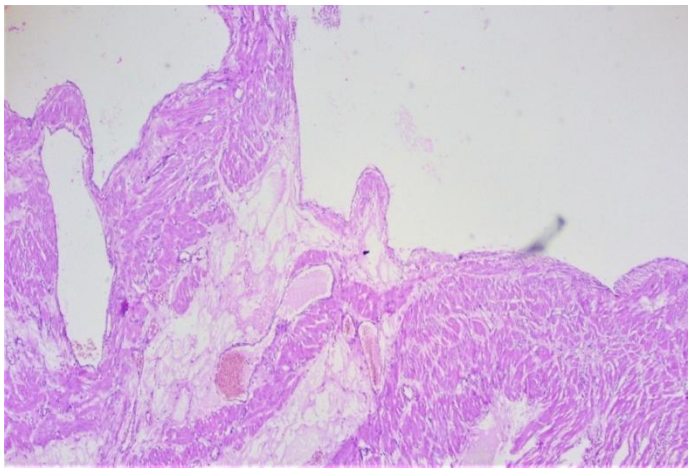

Fig 2: Leiomyoma showing cystic degeneration. (40x)

Discussion

Uterine leiomyoma is the most common benign tumor of the female genital tract and originates from the smooth muscle cells of the myometrium.[4] The slow growing asymptomatic leiomyoma grows to huge size are mostly intramural leiomyomas.

The uterine leiomyomas are more common in the 3rd and 4th decades of life.[5,6,7] In our study, 64% of patients belonged to 3rd and 4th decades(26-45yr). The youngest patient in our study was of 16 years which is also noticed in a study done by Ashraf et al.[8] This indicated that leiomyoma is mainly a disease of women in reproductive age group and are less common before puberty and regresses after menopause and is associated directly with the levels of estrogen in blood, and so their incidence is distributed from menarche to menopause.[1,9]

In the present study, heavy menstrual bleeding was the most common chief clinical presentation and this is in concordance with studies done by Ibrar et al[3], Khyade RL et al[10]and Shaheen et al[11]. Most of the cases of heavy menstrual bleeding were later reported as intramural leiomyoma on histopathology, which is due to reduced myometrial contractions. Intermittent bleeding was commonly associated with submucosal leiomyoma and subserosal leiomyoma were asymptomatic until grown to huge sizes. All the 4 cases of cervical leiomyoma

in our study were also asymptomatic. Infertility was in 15% cases in our study, which is close to the infertility incidence reported in the study done by Chhabra et al.[12]

In our study the 64% cases were multiparous and 18% were primiparaous and the rest 18% cases were nulliparous. This is in concordance with the study done by Bhat[13] in which 95% cases were multipara and 5% were nullipara.

The largest leiomyoma in our study was of 10cmx8cmx8cm and was present with cystic degeneration on microscopy. It caused abdominal pain and pressure symptoms of urinary frequency and urgency. The smallest leiomyoma was an incidental finding with dimensions of 0.5cmx0.5cmx0.4cm and was located in cervix and was asymptomatic.

60% cases in our study were intramural leiomyoma. Padubidri and Daftary[14]and Usha et al[7]also reported intramural leiomyoma as the commonest variety. 4% cases were located in cervix which is higher number in our study when compared with the similar studies done by Ibrar et al (3%) and Tiltman(0.6%)[3]

Hyaline change and calcification are commonly seen in longstanding leiomyomas and are clinically asymptomatic. In our study, hyaline change was most common type of degenerative change observed and was present in 8% cases. This was followed by myxoid degeneration which was noticed in 4% cases. Microscopically, myxoid leiomyoma is comprised of smooth muscle cells with bland nucleus and a myxoid material segregating the tumor cells. There was absence of atypical cells and atypical mitotic figures excluding the possibility of malignancy.[15] Cystic changes are formed in prolonged hyaline degeneration and was observed in 4.1% cases in the study done by Rosai[16], Zaloudek and Hendrikson[17], while we reported these changes in 3% cases. In our study, all the leiomyomas with cystic degeneration were intramural.

More than half of the total hysterectomy specimens in our study were in proliferative phase of menstrual cycle which indicates the hyperestrogenic state associated with leiomyoma. This is also reported in the study done by Udawat and Chabbra et al.[12] In our study, 65% cases were associated with other coexisting lesions of female genital tract and most frequent coexistence of leiomyoma is with cervicitis in 36% cases and 15% cases presented with coexisting adenomyosis. This incidence is similar to the finding of coexisting adenomyosis in the study done by Munuswamy et al.[18] 5% cases were having coexisting ovarian cysts which indicates a direct correlation between leiomyoma and increased estrogen levels in the body. There were 4% cases of metaplastic changes and endometrial hyperplasia each. Only one case of endometritis was present along with leiomyoma.

Conclusion

Uterine leiomyoma are common tumors in gynaecological specimens. Most of the cases are asymptomatic and when symptomatic they present most commonly as menstrual irregularities which is also noticed in our study. Other symptoms are like abdominal pain, painful menstruation, infertility and pressure symptoms etc. These symptoms cause distress and morbidity in patients affecting their daily life. In our study the incidence remains highest in the child bearing age group. Intramural leiomyoma was present in highest number. The presence of proliferative phase of endomentrium, endometrial hyperplasia, adenomyosis and cystic ovaries indicated association of leiomyoma with high estrogen levels in the blood.

References

1. KIstner RW. Gynecology Principles and practices, Chicago yearbook medical publishers Inc. 1964:261.
2. Baird DD, Dunson DB, Hill MC, Cousins D, Schedman JM. High cumulative incidence of uterine leiomyomas in black and white women. Ultrasound incidence of uterine leiomyomas in black and white

women. Ultrasound evidence. Am J Obstet Gynecol.2003.188(1):100-107.
3. Ibrar F, Raiza S, Dawood NS, Jabeen A. Frequency of fibroid uterus in multipara women in a tertiary care centre in Rawalpindi. J Ayub Med Coll Abbottabad. 2010; 22(3):155-7.
4. Akinyemi BO, Adewoye BR, Fakoyata. Uterinefibroid: Areview. Niger J med. 2004;13:318-329.
5. Lefebure G, Viols G A llaire C et al.The management of uterine leiomyoma: Clinical Practice Gynecological Committee. Obstet Gynecol Can. 2003: 25:396-418.
6. Bhasker Reddy D.Study of 325 cases of fibromyoma of uterus. J Obstet Gynecol India.1963;13:340.
7. Usha, Narang BR, Tiwari PV et al. Clinicopathological study of benign tumors od=f the uterus.Indian Med Gazette.1992;12:68-71.
8. Ashrof T.Management of uterine leiomyoma. J Coll physicians Surg Pak.1997;7:160-162.
9. Zimmermann A Bernuit D Gerlinger C et al. Prevalace, symptoms and management of uterine fibroid. An international internet based survey of 21,746 women.BMC women's health.2012,12:6.
10. Khyade RL.A study of menstrual disturbances in cases of fibroid uterus.Int J Reprod Contracept, Obstet Gynecol. 2017;6(6):2494-7.
11. Shaheen S, Naheed T, Sadaf F, Rahim R. Menorrhagia due to fibroids and its management. JSOGP.2013;3(4):231-5.
12. Chhabra S, Ohri N. Leiomyoma of uterus-A clinical study. J Obstet Gynacol India.
13. 13.Bhat RA, Kumar NP. Experience with uterine leiomyomas at a teaching referral hospital in India. J Gyneacol Surg. 2006;22 (4):143-50.
14. Padubidri VG, Daftary SN. Fibromyomas of the uterus. In: Howkins and Bourne Shaw's Textbook of Gynaecology. 12th ed.New Delhi, India: Churchill Livingstone;1999:275-285.
15. Sangle NA, Lele SM. Uterine mesenchymal tumors. Indian J Pathol Micribiol. 2011;54:243-53.
16. Rosai J. Leiomyoma.In: Textbook Surgical Pathology. 9th ed. New Delhi, India: Elsevier;2004;2:1603-1608.
17. Zaloudek C Hendrikson MR. Mesenchymal tumors of the uterus.In: Blaustein's Pathology of the Female Genital Tract.5th ed. New Delhi, India: Springer;2004.
18. Munuswamy MM, Sheelaa WG, Vijaya P L.Clinical presentation and prevalence of uterine fibroids: A 3-years study in 3-decade rural South Indian women.Int J Reprod Contracept Obstet Gynecol.2017 Dec;6(12):5596-5601.